**Title:** Incorporate AC 25-27A (EWIS/EZAP) in ATA MSG-3 Document

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**Issue:** In May 2010, FAA Advisory Circular AC 25-27A replaced the AC 25-27 - “Development of Transport Category Airplane Electrical Wiring Interconnection Systems Instructions for Continued Airworthiness Using an Enhanced Zonal Analysis Procedure”.

The ATA MSG-3 Zonal Analysis Procedure should be revised to reflect AC 25-27A and clarify the relationship between the “Standard” and “Enhanced” zonal analysis processes.

**Problem:**

1. Figure 2-5-1.1 addresses the “Standard” and “Enhanced” zonal analysis process flow. The “Enhanced” portion of the MSG-3 flow diagram is not consistent with the flow diagram in AC 25-27A Appendix A, Figure 1. In addition, changes are required to clarify the integration between the standard and enhanced portions of the flow diagram, and text and terminology should be revised for consistency with AC 25-27A, Appendix A, Figure 1.
2. Figure 2**-**5-1.2 addresses the “Wiring Inspection Task Determination” process flow. Terminology changes are required for consistency with AC 25-27A and changes to the flow logic are required to clarify the integration back to Figure 2-5-1.1.
3. Section 2-5 and 2-5.1 uses the terms “wiring” and “electrical wiring” instead of “EWIS”.
4. ATA MSG-3 Appendix A (Glossary) does not include a definition for “Enhanced Zonal Analysis Procedure (EZAP)” and “Inspection – General Visual (GVI) - Stand-Alone”, and the definition of “Electrical Wiring Interconnection Systems (EWIS)” should be revised for consistency with AC 25-27A.

**Recommendation (including Implementation):**

1. Revise ATA MSG-3 Figure 2-5-1.1 (red-line and publish-ready copies attached).
2. Revise Figure 2-5-1.2 (red-line and publish-ready copies attached).
3. Revise text and terminology in Section 2-5 and Section 2-5.1 (see red-line copy attached).
4. Revise MSG-3 Appendix A (see red-line copy attached).

**IMRBPB Position:**

**Date:**

**Position:**

**Status of Issue Paper (when closed state the closure date):**

**Recommendation for implementation:**

**Important Note:** The IMRBPB positions are not policy. Positions become policy only when the policy is issued formally by the appropriate National Aviation Authority.

Figure 2-5-1.1 Typical Zonal Analysis Procedure

Prepare A/C Zoning, including boundaries

List details of Zone, e.g.:

* Access
* Installed equipment
* L/HIRF protection features
* EWIS
* Possible combustible materials in zone
* etc.

Zone contains only Structure?

Zonal Analysis necessary?

No Task

Zone contains EWIS?

Perform Zonal Analysis: e.g. Rating Table:

* AD
* Environmental
* Density

Is wiring or other EWIS components close (2 in/50 mm) to both primary and backup hydraulic, mechanical, or electrical flight controls?

Are there, or are there likely to be, combustible materials in the zone?

Is there an effective task to significantly reduce the likelihood of accumulation of combustible materials?

Select EWIS inspection level and interval

**See Figure 2-5-1.2**

Define interval and access requirements

Consider candidates from System & Powerplant, L/HIRF, and Structure Analysis Procedures

Consider consolidation with existing inspection tasks in systems and powerplant and/or zonal programs \*

MRB Report

Zonal Section

Define Task and Interval

MRB Report

Systems and Powerplant

Section

\* Section 26.11(b) requires EWIS ICA and fuel tank system ICA developed to comply with 14 CFR 25.981 (SFAR 88) be compatible and any redundancies between them minimized.

**STANDARD ZONAL ANALYSIS**

**ENHANCED ZONAL ANALYSIS**

**YES**

**YES**

**YES**

**YES**

**YES**

**NO**

**NO**

**NO**

**NO**

**See “A” on**

**Figure 2-5-1.2**

**YES**

**NO**

**NO**

* Stand-alone GVI
* DET
* Cleaning (Restoration)
* Any other tasks identified as applicable and effective to maintain EWIS safety

Continue Analysis

GVI Consolidated in Zonal Inspection

EWIS portion

Non-EWIS portion

Using rating tables, assess zone attributes to determine appropriate level of inspection.

Is zonal GVI alone effective for all EWIS in the zone?

Zonal GVI must be augmented with stand-alone GVI and/or DET inspection

Define specific EWIS in the Zone for which stand-alone GVI and/or DET is justified

Using rating tables, assess likelihood of damage to EWIS in the zone to determine an appropriate interval for each inspection task identified.

**See “A” on Figure 2-5-1.1**

Figure 2-5-1.2 EWIS Inspection Task Determination

**YES**

**NO**